SEQUENCE LISTING

<110> OriGene Technologies, Inc

<120> BREAST CANCER TRANSCRIPTION FACTOR GENE AND USES

<130> 16U 107 R1

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<170> PatentIn version 3.1

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                    Met Thr Met Arg Ser Ala Val Phe Lys Ala Ala
                     1           5                   10

gcg gcc cct gcc ggc ggc aat cct gag cag cga ctg gac tac gag cgg   158
Ala Ala Pro Ala Gly Gly Asn Pro Glu Gln Arg Leu Asp Tyr Glu Arg
         15                  20                  25

gct gcg gcg ctg ggc ggg ccc gag gac gag cct ggg gcg gcc gaa gcc   206
Ala Ala Ala Leu Gly Gly Pro Glu Asp Glu Pro Gly Ala Ala Glu Ala
         30                  35                  40

cac ttc ctc ccc cgg cac cgt aag ctc aag gag ccg ggg ccc ccg ctg   254
His Phe Leu Pro Arg His Arg Lys Leu Lys Glu Pro Gly Pro Pro Leu
         45                  50                  55

gcc tcc tcc cag ggc ggg agc ccc gcg cct tcc ccg gcc ggc tgc ggc   302
Ala Ser Ser Gln Gly Gly Ser Pro Ala Pro Ser Pro Ala Gly Cys Gly
60                  65                  70                  75

ggc aag ggc cgg ggc ttg tta ctc ccg gcc ggg gcg gcc ccc ggg cag   350
Gly Lys Gly Arg Gly Leu Leu Leu Pro Ala Gly Ala Ala Pro Gly Gln
                 80                  85                  90

cag gaa gag agc tgg ggc ggt tcg gtg ccc ttg ccc tgt ccg ccc ccg   398
Gln Glu Glu Ser Trp Gly Gly Ser Val Pro Leu Pro Cys Pro Pro Pro
                 95                  100                 105

gcc acc aag caa gcc ggc att ggg ggg gag cct gcc gca gcc gga gcc   446
Ala Thr Lys Gln Ala Gly Ile Gly Gly Glu Pro Ala Ala Ala Gly Ala
             110                 115                 120

ggc tgc agc ccc cgg ccc aag tat cag gcg gtg ctg ccc att cag acg   494
Gly Cys Ser Pro Arg Pro Lys Tyr Gln Ala Val Leu Pro Ile Gln Thr
         125                 130                 135

ggc tct ctc gtg gcg gcg gcc aaa gag cct acg ccc tgg gct ggg gac   542
Gly Ser Leu Val Ala Ala Ala Lys Glu Pro Thr Pro Trp Ala Gly Asp
140                 145                 150                 155

aag ggt ggg gcg gcc tcc ccc gct gcc acc gcc tcg gac ccg gcg gga   590
Lys Gly Gly Ala Ala Ser Pro Ala Ala Thr Ala Ser Asp Pro Ala Gly
                 160                 165                 170

ccc cca cca cta cct ctg ccc ggg ccg cca ccc ctc gcg ccc acc gcc   638
Pro Pro Pro Leu Pro Leu Pro Gly Pro Pro Pro Leu Ala Pro Thr Ala
             175                 180                 185
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acc gcc ggg acc ctg gcg gcc agc gag ggc aga tgg aag agt atg agg      686
Thr Ala Gly Thr Leu Ala Ala Ser Glu Gly Arg Trp Lys Ser Met Arg
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aag agc cct ctc ggg ggt ggt ggc ggc tcg gga gcc tcc agt cag gcc      734
Lys Ser Pro Leu Gly Gly Gly Gly Gly Ser Gly Ala Ser Ser Gln Ala
        205             210             215

gcc tgc ctc aaa cag atc ctt ctg ctg caa ttg gac ctc atc gaa cag      782
Ala Cys Leu Lys Gln Ile Leu Leu Leu Gln Leu Asp Leu Ile Glu Gln
220             225             230             235

cag cag cag cag ctg cag gcc aag gaa aag gag atc gag gag ctg aag      830
Gln Gln Gln Gln Leu Gln Ala Lys Glu Lys Glu Ile Glu Glu Leu Lys
            240             245             250

tca gag aga gac acg ctc ctt gct cgg att gaa cgt atg gaa agg cgg      878
Ser Glu Arg Asp Thr Leu Leu Ala Arg Ile Glu Arg Met Glu Arg Arg
            255             260             265

atg cag ctg gta aag aag gat aac gag aaa gaa agg cac aag ctg ttt      926
Met Gln Leu Val Lys Lys Asp Asn Glu Lys Glu Arg His Lys Leu Phe
        270             275             280

cag ggc tat gaa act gaa gag aga gag gaa aca gag cta tct gag aaa      974
Gln Gly Tyr Glu Thr Glu Glu Arg Glu Glu Thr Glu Leu Ser Glu Lys
        285             290             295

att aaa ctg gag tgc cag ccg gag ctt tcc gag aca tcc cag act ctg     1022
Ile Lys Leu Glu Cys Gln Pro Glu Leu Ser Glu Thr Ser Gln Thr Leu
300             305             310             315

cct ccc aag ccc ttc tca tgt ggg cgg agt gga aag gga cat aaa agg     1070
Pro Pro Lys Pro Phe Ser Cys Gly Arg Ser Gly Lys Gly His Lys Arg
            320             325             330

aaa tcc cca ttt gga agt aca gaa aga aag act cct gtt aaa aag ctg     1118
Lys Ser Pro Phe Gly Ser Thr Glu Arg Lys Thr Pro Val Lys Lys Leu
            335             340             345

gct cct gaa ttt tca aaa gtc aaa aca aaa act cct aag cac tct cct     1166
Ala Pro Glu Phe Ser Lys Val Lys Thr Lys Thr Pro Lys His Ser Pro
            350             355             360

att aaa gag gaa ccc tgt ggt tcc tta tct gaa act gtt tgt aaa cgt     1214
Ile Lys Glu Glu Pro Cys Gly Ser Leu Ser Glu Thr Val Cys Lys Arg
        365             370             375

gaa ttg agg agc caa gaa acc cca gaa aag ccc cgg tct tca gtg gac     1262
Glu Leu Arg Ser Gln Glu Thr Pro Glu Lys Pro Arg Ser Ser Val Asp
380             385             390             395

acc cca cca aga ctc tcc act ccc caa aag gga ccc agc acc cat ccc     1310
Thr Pro Pro Arg Leu Ser Thr Pro Gln Lys Gly Pro Ser Thr His Pro
            400             405             410

aag gag aaa gcc ttc tca agt gag ata gaa gat ttg ccg tac ctt tcc     1358
Lys Glu Lys Ala Phe Ser Ser Glu Ile Glu Asp Leu Pro Tyr Leu Ser
            415             420             425

acc aca gaa atg tat ttg tgt cgt tgg cac cag cct ccc cca tca ccg     1406
Thr Thr Glu Met Tyr Leu Cys Arg Trp His Gln Pro Pro Pro Ser Pro
            430             435             440

tta cca tta cgg gaa tcc tct cca aag aag gag gag act gta gca agg     1454
Leu Pro Leu Arg Glu Ser Ser Pro Lys Lys Glu Glu Thr Val Ala Arg
        445             450             455

tgt ctg atg cca tca agt gtt gca gga gaa act tca gtc ttg gct gtt     1502
Cys Leu Met Pro Ser Ser Val Ala Gly Glu Thr Ser Val Leu Ala Val
460             465             470             475

cct tct tgg agg gac cac tca gta gag cct cta agg gac cca aat cct     1550
Pro Ser Trp Arg Asp His Ser Val Glu Pro Leu Arg Asp Pro Asn Pro
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                              480                    485                    490
     tca gac ctt ttg gag aac ctg gat gac agt gtg ttt tcg aag cgg cat      1598
     Ser Asp Leu Leu Glu Asn Leu Asp Asp Ser Val Phe Ser Lys Arg His
                 495                    500                    505

     gca aaa ctg gag ctg gat gag aag aga agg aaa aga tgg gat att cag      1646
     Ala Lys Leu Glu Leu Asp Glu Lys Arg Arg Lys Arg Trp Asp Ile Gln
             510                    515                    520

     agg atc agg gaa caa aga att tta cag cga ctg cag ctc aga atg tat      1694
     Arg Ile Arg Glu Gln Arg Ile Leu Gln Arg Leu Gln Leu Arg Met Tyr
             525                    530                    535

     aaa aag aaa gga att cag gaa tct gag cct gag gtt acc tca ttt ttc      1742
     Lys Lys Lys Gly Ile Gln Glu Ser Glu Pro Glu Val Thr Ser Phe Phe
     540                    545                    550                    555

     cct gag cca gat gat gtt gaa agt ttg atg att acc ccc ttc ttg cct      1790
     Pro Glu Pro Asp Asp Val Glu Ser Leu Met Ile Thr Pro Phe Leu Pro
                 560                    565                    570

     gtt gta gca ttt gga cga cca tta cca aaa tta act cca cag aat ttt      1838
     Val Val Ala Phe Gly Arg Pro Leu Pro Lys Leu Thr Pro Gln Asn Phe
                 575                    580                    585

     gag cta ccc tgg ttg gat gag cgt agc cga tgc aga ttg gag atc cag      1886
     Glu Leu Pro Trp Leu Asp Glu Arg Ser Arg Cys Arg Leu Glu Ile Gln
             590                    595                    600

     aag aag caa aca cct cac cgg acg tgt agg aaa tag ctgtgctggc          1932
     Lys Lys Gln Thr Pro His Arg Thr Cys Arg Lys
             605                    610

     aagaaccctg tcttcagata gttgtagcat gccattcccg agagtggcag agacctgtat    1992

     atgtgacctt tgtcctcaca tatgttatca ctcgctgata atacccttc atacttcctt    2052

     gactttgttt tcattactct gatttcacaa aaactctttc attcggctaa ttgtgagtta    2112

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     aaacaaaagc acttagtatt tgggatggca tgccaaaacc tgtataaatg tccttgtatc    2712

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                20                  25                  30


Gly Pro Glu Asp Glu Pro Gly Ala Ala Glu Ala His Phe Leu Pro Arg
        35                  40                  45


His Arg Lys Leu Lys Glu Pro Gly Pro Pro Leu Ala Ser Ser Gln Gly
    50                  55                  60


Gly Ser Pro Ala Pro Ser Pro Ala Gly Cys Gly Gly Lys Gly Arg Gly
65                  70                  75                  80


Leu Leu Leu Pro Ala Gly Ala Ala Pro Gly Gln Gln Glu Glu Ser Trp
                85                  90                  95
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Gly Gly Ser Val Pro Leu Pro Cys Pro Pro Ala Thr Lys Gln Ala
        100             105         110

Gly Ile Gly Gly Glu Pro Ala Ala Ala Gly Ala Gly Cys Ser Pro Arg
        115             120         125

Pro Lys Tyr Gln Ala Val Leu Pro Ile Gln Thr Gly Ser Leu Val Ala
    130             135          140

Ala Ala Lys Glu Pro Thr Pro Trp Ala Gly Asp Lys Gly Gly Ala Ala
145             150         155                 160

Ser Pro Ala Ala Thr Ala Ser Asp Pro Ala Gly Pro Pro Pro Leu Pro
                165         170             175

Leu Pro Gly Pro Pro Pro Leu Ala Pro Thr Ala Thr Ala Gly Thr Leu
            180         185             190

Ala Ala Ser Glu Gly Arg Trp Lys Ser Met Arg Lys Ser Pro Leu Gly
        195             200         205

Gly Gly Gly Gly Ser Gly Ala Ser Ser Gln Ala Ala Cys Leu Lys Gln
        210             215         220

Ile Leu Leu Leu Gln Leu Asp Leu Ile Glu Gln Gln Gln Gln Gln Leu
225             230         235                 240

Gln Ala Lys Glu Lys Glu Ile Glu Glu Leu Lys Ser Glu Arg Asp Thr
            245         250             255

Leu Leu Ala Arg Ile Glu Arg Met Glu Arg Arg Met Gln Leu Val Lys
            260         265             270

Lys Asp Asn Glu Lys Glu Arg His Lys Leu Phe Gln Gly Tyr Glu Thr
        275             280         285

Glu Glu Arg Glu Glu Thr Glu Leu Ser Glu Lys Ile Lys Leu Glu Cys
    290             295         300

Gln Pro Glu Leu Ser Glu Thr Ser Gln Thr Leu Pro Pro Lys Pro Phe
305             310         315                 320

Ser Cys Gly Arg Ser Gly Lys Gly His Lys Arg Lys Ser Pro Phe Gly
            325             330         335

Ser Thr Glu Arg Lys Thr Pro Val Lys Lys Leu Ala Pro Glu Phe Ser
            340         345             350

Lys Val Lys Thr Lys Thr Pro Lys His Ser Pro Ile Lys Glu Glu Pro
        355             360         365

Cys Gly Ser Leu Ser Glu Thr Val Cys Lys Arg Glu Leu Arg Ser Gln
    370             375         380

Glu Thr Pro Glu Lys Pro Arg Ser Ser Val Asp Thr Pro Pro Arg Leu
385             390         395                 400
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Ser Thr Pro Gln Lys Gly Pro Ser Thr His Pro Lys Glu Lys Ala Phe
            405             410             415

Ser Ser Glu Ile Glu Asp Leu Pro Tyr Leu Ser Thr Thr Glu Met Tyr
            420             425             430

Leu Cys Arg Trp His Gln Pro Pro Pro Ser Pro Leu Pro Leu Arg Glu
            435             440             445

Ser Ser Pro Lys Lys Glu Glu Thr Val Ala Arg Cys Leu Met Pro Ser
    450             455             460

Ser Val Ala Gly Glu Thr Ser Val Leu Ala Val Pro Ser Trp Arg Asp
465             470             475             480

His Ser Val Glu Pro Leu Arg Asp Pro Asn Pro Ser Asp Leu Leu Glu
            485             490             495

Asn Leu Asp Asp Ser Val Phe Ser Lys Arg His Ala Lys Leu Glu Leu
            500             505             510

Asp Glu Lys Arg Arg Lys Arg Trp Asp Ile Gln Arg Ile Arg Glu Gln
            515             520             525

Arg Ile Leu Gln Arg Leu Gln Leu Arg Met Tyr Lys Lys Lys Gly Ile
    530             535             540

Gln Glu Ser Glu Pro Glu Val Thr Ser Phe Phe Pro Glu Pro Asp Asp
545             550             555             560

Val Glu Ser Leu Met Ile Thr Pro Phe Leu Pro Val Val Ala Phe Gly
            565             570             575

Arg Pro Leu Pro Lys Leu Thr Pro Gln Asn Phe Glu Leu Pro Trp Leu
            580             585             590

Asp Glu Arg Ser Arg Cys Arg Leu Glu Ile Gln Lys Lys Gln Thr Pro
            595             600             605

His Arg Thr Cys Arg Lys
            610


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<212>   PRT
<213>   Homo sapiens

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Met Glu Arg Arg Met Gln Leu Val Lys Lys Asp Asn Glu Lys Glu Arg
1               5               10              15

His Lys Leu Phe Gln Gly Tyr Glu Thr Glu Glu Arg Glu Glu Thr Glu
            20              25              30

Leu Ser Glu Lys Ile Lys Leu Glu Cys Gln Pro Glu Leu Ser Glu Thr
                            Page 6
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                35                      40                      45
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```
Ser Gln Thr Leu Pro Pro Lys Pro Phe Ser Cys Gly Arg Ser Gly Lys
    50                  55                  60

Gly His Lys Arg Lys Ser Pro Phe Gly Ser Thr Glu Arg Lys Thr Pro
65                  70                  75                  80

Val Lys Lys Leu Ala Pro Glu Phe Ser Lys Val Lys Thr Lys Thr Pro
                85                  90                  95

Lys His Ser Pro Ile Lys Glu Glu Pro Cys Gly Ser Leu Ser Glu Thr
                100                 105                 110

Val Cys Lys Arg Glu Leu Arg Ser Gln Glu Thr Pro Glu Lys Pro Arg
            115                 120                 125

Ser Ser Val Asp Thr Pro Pro Arg Leu Ser Thr Pro Gln Lys Gly Pro
    130                 135                 140

Ser Thr His Pro Lys Glu Lys Ala Phe Ser Ser Glu Ile Glu Asp Leu
145                 150                 155                 160

Pro Tyr Leu Ser Thr Thr Glu Met Tyr Leu Cys Arg Trp His Gln Pro
                165                 170                 175

Pro Pro Ser Pro Leu Pro Leu Arg Glu Ser Ser Pro Lys Lys Glu Glu
                180                 185                 190

Thr Val Ala Ser Lys Ala
                195
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1               5                   10                  15

Gly Asn Pro Glu Gln Arg Leu Asp Tyr Glu Arg Ala Ala Ala Leu Gly
            20                  25                  30

Gly Pro Glu Asp Glu Ser Gly Ala Ala Glu Ala His Phe Leu Pro Arg
            35                  40                  45

His Arg Lys Leu Lys Glu Pro Gly Pro Pro Leu Ala Ser Ser Gln Gly
    50                  55                  60

Gly Ser Pro Ser Pro Ser Pro Ala Gly Cys Gly Gly Gly Lys Gly Arg
65                  70                  75                  80

Gly Leu Leu Leu Pro Ala Gly Ala Ala Pro Gly Gln Gln Glu Glu Ser
                85                  90                  95
```

```
Trp Gly Gly Ser Val Pro Leu Pro Cys Pro Pro Pro Ala Thr Lys Gln
        100             105         110

Ala Gly Ile Gly Gly Glu Pro Val Ala Ala Gly Ala Gly Cys Ser Pro
        115             120         125

Arg Pro Lys Tyr Gln Ala Val Leu Pro Ile Gln Thr Gly Ser Ile Val
    130             135         140

Val Ala Ala Ala Lys Glu Pro Thr Pro Trp Ala Gly Asp Lys Gly Gly
145             150         155             160

Ala Ala Pro Pro Ala Ala Thr Ala Ser Asp Pro Ala Gly Pro Pro Pro
            165             170             175

Leu Pro Leu Pro Gly Pro Pro Leu Ala Pro Thr Ala Thr Ala Gly
            180             185         190

Thr Leu Ala Ala Ser Glu Gly Arg Trp Lys Ser Ile Arg Lys Ser Pro
        195             200         205

Leu Gly Gly Gly Gly Gly Ser Gly Ala Ser Ser Gln Ala Ala Cys Leu
    210             215         220

Lys Gln Ile Leu Leu Leu Gln Leu Asp Leu Ile Glu Gln Gln Gln Gln
225             230         235             240

Gln Leu Gln Ala Lys Glu Lys Glu Ile Glu Glu Leu Lys Ser Glu Arg
            245             250         255

Asp Thr Leu Leu Ala Arg Ile Glu Arg Met Glu Arg Arg Met Gln Leu
        260             265         270

Val Lys Arg Asp Asn Glu Lys Glu Arg His Lys Leu Leu Gln Gly Tyr
    275             280         285

Glu Pro Glu Glu Arg Glu Glu Ala Glu Leu Ser Glu Lys Ile Lys Leu
    290             295         300

Glu Arg Gln Pro Glu Leu Cys Glu Thr Ser Gln Ala Leu Pro Ser Lys
305             310         315             320

Pro Phe Ser Cys Gly Arg Ser Gly Lys Gly His Lys Arg Lys Thr Pro
            325             330         335

Phe Gly Asn Thr Glu Arg Lys Asn Pro Val Lys Lys Leu Ala Pro Glu
            340             345         350

Phe Ser Lys Val Lys Thr Lys Thr Pro Lys His Ser Pro Ile Lys Glu
        355             360         365

Glu Pro Cys Gly Ser Ile Ser Glu Thr Val Cys Lys Arg Glu Leu Arg
    370             375         380

Ser Gln Glu Thr Pro Glu Lys Pro Arg Ser Ser Val Asp Thr Pro Pro
385             390         395             400
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Arg Leu Ser Thr Pro Gln Lys Gly Pro Ser Thr His Pro Lys Glu Lys
            405   410   415

Ala Phe Ser Ser Glu Met Glu Asp Leu Pro Tyr Leu Ser Thr Thr Glu
            420   425   430

Met Tyr Leu Cys Arg Trp His Gln Pro Pro Pro Ser Pro Leu Pro Leu
        435   440   445

Arg Glu Ser Ser Pro Lys Lys Glu Glu Thr Val Ala Arg Cys Leu Met
        450   455   460

Pro Ser Ser Val Ala Gly Glu Thr Ser Val Leu Ala Val Pro Ser Trp
465   470   475   480

Arg Asp His Ser Val Glu Pro Leu Arg Asp Pro Asn Pro Ser Asp Ile
            485   490   495

Leu Glu Asn Leu Asp Asp Ser Val Phe Ser Lys Arg His Ala Lys Leu
            500   505   510

Glu Leu Asp Glu Lys Arg Arg Lys Arg Trp Asp Ile Gln Arg Ile Arg
        515   520   525

Glu Gln Arg Ile Leu Gln Arg Leu Gln Leu Arg Met Tyr Lys Lys Lys
        530   535   540

Gly Ile Gln Glu Ser Glu Pro Glu Val Thr Ser Phe Phe Pro Glu Pro
545   550   555   560

Asp Asp Val Glu Ser Leu Leu Ile Thr Pro Phe Leu Pro Val Val Ala
            565   570   575

Phe Gly Arg Pro Leu Pro Lys Leu Ala Pro Gln Asn Phe Glu Leu Pro
            580   585   590

Trp Leu Asp Glu Arg Ser Arg Cys Arg Leu Glu Ile Gln Lys Lys His
        595   600   605

Thr Pro His Arg Thr Cys Arg Lys
        610   615